Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force

R-1 Program Element (Number/Name)

Date: March 2014

3600: Research, Development, Test & Evaluation, Air Force I BA 7:

PE 0101113F *I B-52 SQUADRONS*

Operational Systems Development

Appropriation/Budget Activity

operational dystems bevelopine												
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO [#]	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
Total Program Element	-	17.951	17.007	55.457	-	55.457	62.642	28.653	20.328	4.365	-	206.403
675039: B-52 System Improvements	-	0.052	-	-	-	-	-	-	-	-	-	0.052
675048: 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)	-	15.659	4.373	41.134	-	41.134	60.665	26.277	15.370	-	-	163.478
675049: MODE S/5 IFF	-	1.511	-	-	-	-	-	-	-	-	-	1.511
675050: CONECT	-	-	12.634	14.323	-	14.323	1.977	2.376	4.958	4.365	-	40.633
675051: ANTI-SKID	-	0.729	-	-	-	-	-	-	-	-	-	0.729

[#] The FY 2015 OCO Request will be submitted at a later date.

Note

In FY 2015, 675048, 1760 IWBU includes new start efforts.

A. Mission Description and Budget Item Justification

B-52 SYSTEM IMPROVEMENTS (BPAC 675039)

Project 675039 System Improvements, changed from B-52 Modernization.

B-52 System Improvements is a comprehensive project to ensure B-52 viability to perform current and future wartime missions to include datalinks, navigation, sensors, weapons, electronic warfare (EW), and training capabilities. B-52 System Improvements integrates and adds both tactical and global datalink communications for real time command and control, targeting, and intelligence. It upgrades antiquated Air Traffic Management (ATM) systems with those supported by three key functions using satellite technology: Communications, Navigation and Surveillance (CNS). B-52 System Improvements upgrades training devices to support aircrew and maintenance training with the latest B-52 capability. In addition, it improves conventional warfare capability with additional MIL-STD-1760 smart weapons and improved weapons carriage and fully integrates advanced targeting pods with the offensive avionics system. It studies, analyzes, and tests aircraft systems' hardness to Chemical, Biological, Radiological, and Nuclear (CBRN) weapons effects, such as Low Level Continuous Wave (LLCW) and High altitude Electromagnetic Pulse (HEMP) Survivability tests. It upgrades mission critical systems to survive in CBRN environments. B-52 System Improvements upgrades or replaces legacy defensive EW systems to include the radar warning receiver, jammers, chaff and flare dispensers and situational awareness displays as well as integration of offensive EW such as the Miniature Air-Launched Decoy (MALD) and MALD-Jammer (MALD-J).

Engineering Studies & Analysis and Test & Evaluation

PE 0101113F: *B-52 SQUADRONS*

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force Date: March 2014

Appropriation/Budget Activity

3600: Research, Development, Test & Evaluation, Air Force I BA 7:

Operational Systems Development

R-1 Program Element (Number/Name) PE 0101113F *I B-52 SQUADRONS*

B-52 system improvements funds test activities at the Air Force Flight Test Center (AFFTC), engineering and planning studies for potential future weapon system enhancements (weapons, sensors, avionics, and EW) and emerging requirement on current projects, upgrades to the B-52 Systems Integration Laboratory (SIL). Avionics Integration Support Facility (AISF), and Weapon System Trainers (WSTs), and weapon system operational/safety, supportability, reliability, and Total Ownership Cost (TOC) improvements.

Additional Efforts

B-52 system improvements funds additional efforts that stem from the operation and maintenance of a 50-plus-year-old aircraft, such as parts obsolescence, Diminishing Manufacturing Sources (DMS), and emerging requirements to add to or maintain the existing capabilities. Examples include, but are not limited to upgrades to outdated avionics computers, mission planning interfaces to Joint Mission Planning Software (JMPS), Air Force Mission Support System (AFMSS), upgrades to the EW suite, and studies and analysis. All B-52 development projects support planned requirements for unique identification in their production phases.

B-52 COMBAT NETWORK COMMUNICATIONS TECHNOLOGY (CONECT) (BPAC 675050)

The B-52 CONECT acquisition project supports nuclear and conventional operations by upgrading the B-52 fleet with tactical datalink and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations. The CONECT upgrade includes new Multi-Functional Color Displays (MFCDs) and a digital interphone system, which will survive and function through the nuclear environment to enhance crew interaction and situational awareness. To enable net centric operations, the CONECT upgrade integrates: on-board client/server architecture supporting distributed processing with independent control functions; UHF Beyond Line-Of-Sight (BLOS) Joint Range Extension (JRE) capability via ARC-210 Warrior radio to exchange J-Series messaging within theater; Intelligence Broadcast Receiver (IBR); limited Internet Protocol (IP) based UHF BLOS link supporting voice, e-mail and file transfers; and Improved Data Modem (IDM)-based digital Variable Message Format (VMF) datalink to significantly enhance close air support (CAS) missions. This integrated suite will provide the B-52 fleet with a machine-to-machine data transfer capability supporting aircraft re-tasking and retargeting of Conventional Air Launched Cruise Missile (CALCM) and Jseries weapons across the range of B-52 military operations and missions. This requirement's Capability Development Document (CDD) was validated by the Air Force Requirement's Oversight Capability Council (AFROCC) on 18 March 2004.

Trainers and Upgrades for CONECT

In order to maintain currency with the latest aircraft configuration, the CONECT project will update existing trainers or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the SIL for the WSTs.

B-52 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU) (BPAC 675048)

The 1760 IWBU requires the integration of the 1760 weapons capability into the bomb bay on 78 B-52H aircraft, which includes two Ground Instructional Training Aircraft (GITA), utilizing 44 Common Strategic Rotary Launcher (CSRLs) converted into Conventional Rotary Launchers (CRLs), where three of the CRLs will be modified under Engineering Manufacturing and Development (EMD) for test purposes. This requirement's Capability Development Document (CDD) was validated by the AFROCC in April 2013. The 1760 IWBU project provides internal and external carriage for eight weapons and consists of two sub increments: 1.1 and 1.2.

Increment 1.1 consists of internal carriage of eight Joint Direct Attack Munitions (JDAM) and variants, to include Laser JDAM (LJDAM), on a rotary launcher. Additionally, this increment develops the capability for external carriage for 16 LJDAM.

PE 0101113F: *B-52 SQUADRONS*

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force		Date: March 2014
Appropriation/Budget Activity	R-1 Program Element (Number/Name)	
3600: Research, Development, Test & Evaluation, Air Force I BA 7:	PE 0101113F <i>I B-52 SQUADRONS</i>	
Operational Systems Development		

Increment 1.2 develops the capability for internal carriage of eight Joint Air-to-Surface Standoff Missiles (JASSM) and its variants, to include JASSM-Extended Range (JASSM-ER), and eight Miniature Air Launched Decoys (MALD) and its variants, to include MALD Jammer (MALD-J). This increment also develops the capability for external carriage for 12 JASSM-ER.

B-52 MODE S/5 IFF (BPAC 675049)

Mode S/5 Identification, Friend or Foe (IFF) is part of the Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) effort and will develop and integrate modern IFF technology into the B-52 to enable it to operate in the evolving air traffic environment. This effort is driven by International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) mandates to comply with performance standards to allow the B-52 to operate safely in controlled airspaces. Aircraft not equipped with appropriate capabilities will not be able to operate in airspace where new separation standards and air traffic management procedures are implemented. An additional benefit is the significant fuel savings that will result in being able to fly at optimum and more efficient routes and altitudes. DoD mandates Joint Requirements Oversight Council Memorandum (JROCM) 047-07 (signed March 2007) and JROCM 122-08 (signed June 2008) dictate replacement of the B-52's APX-64 IFF (Identification, Friend or Foe) Transponder with a modern Mode S/5 transponder. This requirement was validated by Air Force Form 1067, signed in November 2011.

B-52 ANTI-SKID REPLACEMENT (BPAC 675051)

The B-52 Anti-skid system is used to maintain control of aircraft during landings and taxi operations. The B-52 Anti-skid system prevents aircraft skidding by sensing the exact amount of brake pressure needed for safe braking under all runway conditions without tire damage. Previous B-52 Anti-skid supportability analysis, completed in 2006 by General Atomics indicated a supportability end date of 2011, based on parts obsolescence, a lack of test equipment, and a lack of repair personnel. Parts obsolescence continues to be a major supportability factor. However, since the previous analysis, test equipment and new depot maintenance procedures to refurbish previously failed Anti-skid detectors have been put in place in order to provide spares through 2015 when the replacement will be available. The Anti-skid Replacement project develops and installs a new system. This effort includes an upgrade of the maintenance trainers. This requirement was validated by Air Force Form 1067, signed in July 2009.

ARMS CONTROL ACTIVITIES (Funding is in the ARMS Control PE, 0305145F)

Arms Control Activities under the New START Treaty drives the need to modify a number of B-52s to a conventional only role by removing the Code Enable Switch and associated equipment. This effort requires a complete design to remove the equipment from the aircraft and install metal plates prohibiting reinstallation of removed equipment to comply with treaty protocols.

These projects are in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

PE 0101113F: *B-52 SQUADRONS*

Air Force

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Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Air Force

Appropriation/Budget Activity

3600: Research, Development, Test & Evaluation, Air Force I BA 7:

Operational Systems Development

R-1 Program Element (Number/Name)
PE 0101113F / B-52 SQUADRONS

Date: March 2014

· · · · · · · · · · · · · · · · · · ·					
B. Program Change Summary (\$ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	53.208	24.007	20.187	-	20.187
Current President's Budget	17.951	17.007	55.457	-	55.457
Total Adjustments	-35.257	-7.000	35.270	-	35.270
 Congressional General Reductions 	-0.025	-			
 Congressional Directed Reductions 	-34.700	-7.000			
 Congressional Rescissions 	-	-			
 Congressional Adds 	-	-			
 Congressional Directed Transfers 	-	-			
 Reprogrammings 	-	-			
SBIR/STTR Transfer	-0.532	-			
 Other Adjustments 	-	-	35.270	-	35.270

Change Summary Explanation

FY13 adjustments: -\$34.7M Congressional Mark for CONECT Restructure, -\$.532 for Small Business Innovation Research (SBIR), and -\$.025M in Congressional General Reductions.

FY14 adjustments: -\$3.0M Congressional Mark 1760 Internal Weapons Bay Upgrade Flight Test Delay, and -\$4.0M Program decrease.

FY15 adjustments: +\$2.40M for fully funded CONECT (76 acft), and +\$32.87M for fully funded 1760 IWBU Inc 1.1 and Inc 1.2

PE 0101113F: *B-52 SQUADRONS*

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Exhibit R-2A, RDT&E Project Ju	ustification	: PB 2015 <i>A</i>	Air Force							Date: Mar	ch 2014	
Appropriation/Budget Activity 3600 / 7			` ` '				Project (Number/Name) 675039 / B-52 System Improvements					
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
675039: B-52 System Improvements	-	0.052	-	-	-	-	-	-	-	-	-	0.052
Quantity of RDT&E Articles	-	-	_	-	_	-	_	-	-	-		

[#] The FY 2015 OCO Request will be submitted at a later date.

A. Mission Description and Budget Item Justification

B-52 SYSTEM IMPROVEMENTS

Project 675039 System Improvements, changed from B-52 Modernization.

B-52 System Improvements is a comprehensive project to ensure B-52 viability to perform current and future wartime missions to include datalinks, navigation, sensors, weapons, electronic warfare (EW), and training capabilities. B-52 System Improvements integrates and adds both tactical and global datalink communications for real time command and control, targeting, and intelligence. It upgrades antiquated Air Traffic Management (ATM) systems with those supported by three key functions using satellite technology: Communications, Navigation and Surveillance (CNS). B-52 System Improvements upgrades training devices to support aircrew and maintenance training with the latest B-52 capability. In addition, it improves conventional warfare capability with additional MIL-STD-1760 smart weapons and improved weapons carriage and fully integrates advanced targeting pods with the offensive avionics system. It studies, analyzes, and tests aircraft systems' hardness to Chemical, Biological, Radiological, and Nuclear (CBRN) weapons effects, such as Low Level Continuous Wave (LLCW) and High altitude Electromagnetic Pulse (HEMP) Survivability tests. It upgrades mission critical systems to survive in CBRN environments. B-52 System Improvements upgrades or replaces legacy defensive EW systems to include the radar warning receiver, jammers, chaff and flare dispensers and situational awareness displays as well as integration of offensive EW such as the Miniature Air-Launched Decoy (MALD) and MALD-Jammer (MALD-J).

BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2013	FY 2014	FY 2015
Title: B-52 Radar Modernization Program Initiative (RMP)	0.052	-	-
Description: Campaign-level modeling and simulation (M&S) effort to support a future B-52 RMP initiative. Specifically, M&S will provide quantitative justification highlighting the increased reliability and operational leverage a new active electronically scanned array (AESA) radar will provide current and future mission sets to support the Defense Strategic Guidance and the President's rebalance to the Pacific.			
FY 2013 Accomplishments:			
Completed studies for Campaign-level M&S effort to support a future B-52 Radar Modernization Program initiative.			
Accomplishments/Planned Programs Subtotals	0.052	-	-

PE 0101113F: *B-52 SQUADRONS* Air Force

Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
11	R-1 Program Element (Number/Name)	,	umber/Name)
3600 / 7	PE 0101113F <i>I B-52</i> SQUADRONS	07503978	3-52 System Improvements

C. Other Program Funding Summary (\$ in Millions)

			FY 2015	FY 2015	FY 2015					Cost To	
<u>Line Item</u>	FY 2013	FY 2014	Base	OCO	Total	FY 2016	FY 2017	FY 2018	FY 2019	Complete	Total Cost
 RDTE: BA07: PE 0305145F: 	4.000	-	-	-	-	-	-	-	-	-	4.000
Arms Control Implementation											
• APAF: BA 05: Line Item # B05200:	-	0.500	0.198	-	0.198	0.099	0.198	-	-	-	0.995
Arms Control Implementation											

Remarks

D. Acquisition Strategy

The RMP M&S effort was conducted organically by AFGSC/A5B and various AFLCMC (Wright-Patterson AFB) organizations.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

PE 0101113F: *B-52 SQUADRONS*

Air Force

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force

Date: March 2014

Appropriation/Budget Activity R-1 Program Element (Number/Name) Project (Number/Name)

3600 *l* 7 PE 0101113F *l* B-52 SQUADRONS

675039 / B-52 System Improvements

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B-52 Squadrons System Improvements Schedule

Activity	FY13	FY14	FY15	FY16	FY17	FY18	FY19
System Improvements Milestones	Q2 Q2 Q3 Q4 Radar Moderni	Q1 Q2 Q3 Q4 zation Program		Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q

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Integrity - Service - Excellence

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PE 0101113F: *B-52 SQUADRONS* Air Force

Exhibit R-2A, RDT&E Project Ju	stification	: PB 2015 A	Air Force							Date: Mar	ch 2014	
Appropriation/Budget Activity 3600 / 7							t (Number/ SQUADRON	,	Project (Number/Name) 675048 I 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
675048: 1760 INTERNAL WEAPONS BAY UPGRADE (IWBU)	-	15.659	4.373	41.134	-	41.134	60.665	26.277	15.370	-	-	163.478
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

^{*} The FY 2015 OCO Request will be submitted at a later date.

Note

In FY 2015, 675048, 1760 IWBU includes new start efforts.

A. Mission Description and Budget Item Justification

MIL-STD-1760 Internal Weapons Bay Upgrade (IWBU) requires the integration of the 1760 weapons capability into the bomb bay on 78 B-52H aircraft, which includes two Ground Instructional Training Aircraft (GITA), utilizing 44 Common Strategic Rotary Launcher (CSRLs) converted into Conventional Rotary Launchers (CRLs), where three of the CRLs will be modified under Engineering Manufacturing and Development (EMD) for test purposes. The 1760 IWBU project is segmented into increments. Increment 1.0 provides internal and external carriage for eight weapons and consists of two sub increments: 1.1 and 1.2. This requirement's Capability Development Document (CDD) was validated by the Air Force Requirements Oversight Capability Council (AFROCC) in April 2013.

Increment 1.1

Air Force

Increment 1.1 consists of internal carriage of eight Joint Direct Attack Munitions (JDAM) and variants, to include Laser JDAM (LJDAM), on a rotary launcher. This increment also develops the capability for external carriage for 16 LJDAM. The CRL Hardware modification consists of Group A (equipment racks and electrical wiring) and Group B (one Survivability/Vulnerability (SV) junction box and one Integrated Weapons Interface Unit (IWIU) per CRL). The IWIU Line Replaceable Unit (LRU) was previously developed under the Advanced Weapons Integration (AWI) project. No CSRL replacements will be required as a result of this project. Increment 1.1 completed Preliminary Design Review in February 2013 and awarded an EMD contract in September 2013. Critical Design Review (CDR) was conducted in October 2013.

Aircraft Hardware Development: None

Software Development: Consists of modifying aircraft Operational Flight Program (OFP) software, JDAM Stores Management Overlays (SMO) and ground based Joint Mission Planning System (JMPS).

CRL Hardware Development: Consists of modifying USSTRATCOM provided CSRLs by replacing nuclear mission equipment with Group B hardware and wiring interfaces. Group A includes equipment racks and electrical wiring; Group B includes one Survivability/Vulnerability (SV) junction box and one IWIU per CRL. The

PE 0101113F: *B-52 SQUADRONS*

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
· · · · · · · · · · · · · · · · · · ·	R-1 Program Element (Number/Name) PE 0101113F I B-52 SQUADRONS	- 3 (umber/Name) 760 INTERNAL WEAPONS BAY E (IWBU)

IWIU LRU was previously developed under the AWI project and work was previously accomplished during a 2005 demonstration and developed using 2006 and 2007 Congressional Add funding. Three CSRLs will be modified using RDT&E funds.

Support Equipment: Consists of developing software and 38 rotary launcher cable adapter sets on existing Multi-Use System Tester Armament Next Generation (MUSTANG) testers to interface with the CRL.

Increment 1.2

Increment 1.2 develops the capability for internal carriage of eight Joint Air-to-Surface Standoff Missiles (JASSM) and its variants, to include JASSM Extended Range (JASSM-ER), and eight Miniature Air Launched Decoys (MALD) and its variants, to include MALD Jammer (MALD-J). This increment also develops the capability for external carriage for 12 JASSM-ER.

Aircraft Hardware Development: Development of Group A wiring and circuit breakers to supply additional power to the CRL per JASSM-ER requirements, for all 76 operational B-52H aircraft, and two GITA aircraft.

Software Development: Development of a modification to existing aircraft SMO and weapon (JASSM and MALD) OFP software to allow for internal and external carriage and modification to ground based JMPS.

CRL Hardware Development: Develops Group A associated interface hardware and two Group B LRUs (one power supply and one power distribution box). Three CRLs will be modified using RDT&E funds.

Support Equipment: Consists of developing software updates to the existing MUSTANG to interface with the CRL and the development of additional ground handling support equipment.

BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2013	FY 2014	FY 2015
Title: 1760 IWBU Inc 1.1	15.659	4.373	16.140
Description: Provides internal J-series weapons capability through modification of CSRLs with IWIUs and upgraded weapon management software.			
FY 2013 Accomplishments:			

PE 0101113F: *B-52 SQUADRONS*

Air Force

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				UNCLAS										
Exhibit R-2A, RDT&E Project Justif	ication: PB	2015 Air Fo	rce						Date: Ma	arch 2014				
Appropriation/Budget Activity 3600 / 7						nent (Numb 52 SQUADR		675048	t (Number/Name) 3 I 1760 INTERNAL WEAPONS E ADE (IWBU)					
B. Accomplishments/Planned Prog	rams (\$ in I	<u> Millions)</u>							FY 2013	FY 2014	FY 2015			
Continued Increment 1.1 activities: C review, technical readiness review, c Continued B-52 JMPS development, computer program software.	ontinued for	mal qualificat	tion testing o	of JDAM SMO	O software,	and entered	the EMD pha	ase.						
FY 2014 Plans: Continue Increment 1.1 development and JDAM SMO. Continue B-52 JMF drawings for CRL, and test support e orders in preparation for kit-proof. Mo	PS and Train quipment mo	er/Ground Modification kit	Maintenance s to support	Computer P	rogram (GM	ICP) softwar	e. Finalize							
FY 2015 Plans: Continue Increment 1.1 development of CRL prototype and JDAM SMO. Comport equipment modification kits to kit-proof. Continue modification of three continues are continued to the continue modification of t	Continue B-5 o support Mi	2 JMPS and lestone C ac	Trainer/GM	CP software	. Finalize dı	awings for C	RL, and test							
Title: 1760 IWBU Inc 1.2									-	-	24.994			
Description: Provides internal J-seri modifications, and upgraded weapon FY 2015 Plans: Implement Increment 1.2 developme Flight Program Software contracts.	manageme	nt software. ch Developn	nent phase.	Award Tech				nal						
	<u> </u>				nplishment	s/Planned P	rograms Su	btotals	15.659	4.373	41.134			
C. Other Program Funding Summa	rv (\$ in Milli	ons)												
<u> </u>	. y \ y	<u> </u>	FY 2015	FY 2015	FY 2015					Cost To)			
<u>Line Item</u>	FY 2013	FY 2014	Base	<u>000</u>	<u>Total</u>	FY 2016	FY 2017	FY 2018	<u>FY 2019</u>	Complete	Total Cos			
 APAF: BA05: Line Item # B05200: B-52 	-	-	6.724	-	6.724	14.599	3.763	0.377	7 41.986	-	-			
APAF: BA06: Line Item # 000999: Initial Spares/Repair Parts	-	-	0.449	-	0.449	1.093	0.952	-	0.112	-	-			
 APAF: BA07: Line Item # B05200: Depot Activation 	-	-	-	-	-	3.960	-	-	-	-	-			

PE 0101113F: *B-52 SQUADRONS*

Air Force

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Appropriation/Budget Activity R-1 Program Element (Number/Name) Project (Number/Name) Project (Number/Name)	khibit R-2A, RDT&E Project Justification: PB 2015 Air Force	Date: N	March 2014
UPGRADE (IWBU)		PE 0101113F <i>I B-52 SQUADRONS</i> 675048 <i>Ì 1760 INT</i>	TERNAL WEAPONS BAY

C. Other Program Funding Summary (\$ in Millions)

			FY 2015	FY 2015	FY 2015					Cost To	
Line Item	FY 2013	FY 2014	<u>Base</u>	<u>oco</u>	<u>Total</u>	FY 2016	FY 2017	FY 2018	FY 2019	Complete	Total Cost

Remarks

D. Acquisition Strategy

The 1760 Internal Weapons Bay Upgrade project will acquire software development and hardware design via a sole-source contract to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Deliverables include an updated J-series weapon SMOs (software), three prototype modified CSRLs, six Low Rate Initial Production (LRIP) assets, logistics support, ground and flight test support, and engineering drawings. The project will competitively procure the CRL modification kits for full rate production, and installs of the kits will be completed via Contract Field Teams (CFTs).

Increment 1.1 consists of internal carriage of eight JDAM and variants, to include LJDAM, on a rotary launcher. This increment also develops the capability for external carriage for 16 LJDAM. The CRL Hardware modification consists of Group A (equipment racks and electrical wiring) and Group B (one SV junction box and one IWIU per CRL).

Increment 1.2 develops the capability for internal carriage of eight JASSM and its variants, to include JASSM-ER, or eight MALD and its variants, to include MALD-J. This increment also develops the capability for external carriage for 12 JASSM-ER.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

PE 0101113F: *B-52 SQUADRONS*

Air Force

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force

R-1 Program Element (Number/Name)

me) Project (Number/Name)

Appropriation/Budget Activity 3600 / 7

PE 0101113F *I B-52 SQUADRONS*

675048 Ì 1760 INTERNAL WEAPONS BAY

Date: March 2014

UPGRADE (IWBU)

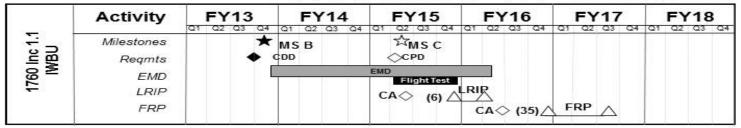


Pre-decisional / Internal AF use only

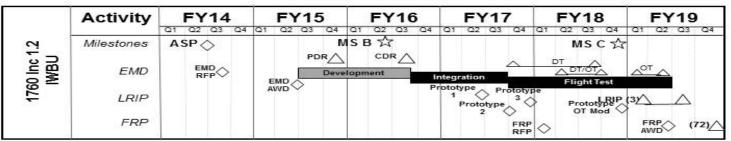
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B-52 Squadrons

1760 IWBU 1.1 Schedule



1760 IWBU 1.2 Schedule



Concept activities
Production / fielding

Design / development
Operations / sustainment

Integration / test △♦ Key events

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1

PE 0101113F: *B-52 SQUADRONS* Air Force

Exhibit R-2A, RDT&E Project Ju	stification:	PB 2015 A	Air Force							Date: Mare	ch 2014	
Appropriation/Budget Activity 3600 / 7					_		t (Number/ SQUADRO/	•	Project (N 675049 / N	umber/Nar 10DE S/5 II	•	
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
675049: MODE S/5 IFF	-	1.511	-	-	-	-	-	-	-	-	-	1.511
Quantity of RDT&E Articles	4.000	-	-	-	-	-	-	-	-	-		

^{*} The FY 2015 OCO Request will be submitted at a later date.

Note

The RDT&E effort for this project ends with FY13 funding.

A. Mission Description and Budget Item Justification

Mode S/5 IFF

Mode S/5 Identification, Friend or Foe (IFF) is part of the Communication Navigation Surveillance/Air Traffic Management (CNS/ATM) effort and will develop and integrate modern IFF technology into the B-52 to enable it to operate in the evolving air traffic environment. This effort is driven by International Civil Aviation Organization (ICAO) and Federal Aviation Administration (FAA) mandates to comply with performance standards to allow the B-52 to operate safely in controlled airspaces. Aircraft not equipped with appropriate capabilities will not be able to operate in airspace where new separation standards and air traffic management procedures are implemented. An additional benefit is the significant fuel savings that will result in being able to fly at optimum and more efficient routes and altitudes. DoD mandates Joint Requirements Oversight Council Memorandum (JROCM) 047-07 (signed March 2007) and JROCM 122-08 (signed June 2008) dictate replacement of the B-52's APX-64 IFF (Identification, Friend or Foe) Transponder with a modern Mode S/5 transponder. This requirement was validated by Air Force Form 1067, signed in November 2011.

CNS/ATM

Air Force

Capabilities identified under CNS/ATM activities will include Frequency Modulation (FM) immunity management, digital communications (voice and data), improved navigation accuracy such as Required Navigation Performance (RNP) or Global Positioning System (GPS) enhancements, Reduced Vertical Separation Minimum (RVSM), enhanced situational awareness such as Mode S/Mode 5 IFF, Communications Management Unit, HF Data Link, Auto Dependent Surveillance-Broadcast (ADS-B), Selective Availability Anti-spoofing Module (SAASM) and any follow-on activities to associated components/systems resulting from modifications to CNS/ATM systems.

BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2013	FY 2014	FY 2015
Title: Mode S/5 IFF	1.511	-	-
Description: Integrates modern IFF technology onto the B-52 by replacing the current system with APX-119 required by DoD, FAA and the ICAO.			

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
11	, ,	, ,	umber/Name)
3600 / 7	PE 0101113F <i>I B-52 SQUADRONS</i>	6750497 <i>I</i> V	MODE S/5 IFF

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: Upgraded the Systems Integration Lab (SIL); created developmental and operational test procedures; modified Electromagnetic Interference/Electromagnetic Compatibility (EMI/EMC) (safety of flight) test procedures; identified long-lead components; completed all fabrication drawings; developed Installation drawing packages; conducted SIL testing; supported ground/flight testing and completed Air Traffic Control Radar System IFF Mark XII/Mark XIIA, Air Traffic Control Radar Beacon System (ATCRBS); IFF, Mark XII/XIIA, Systems (AIMS); completed AFLCMC/HBAI Systems platform certification; and reported certification results. Updated technical orders and weapon system trainer configurations to include Mode S/5 IFF. Maintained interoperability with multiple configurations in the B-52 fleet.			
Accomplishments/Planned Programs Subtotals	1.511	_	_

C. Other Program Funding Summary (\$ in Millions)

			FY 2015	FY 2015	FY 2015					Cost To	
<u>Line Item</u>	FY 2013	FY 2014	Base	000	Total	FY 2016	FY 2017	FY 2018	FY 2019	Complete	Total Cost
 APAF: BA05: Line 	-	9.590	10.626	-	10.626	2.488	-	-	-	-	-
Item # B05200: B-52											
APAF: BA06: Line Item #	-	0.143	0.896	-	0.896	0.074	-	-	-	-	-
000999: Initial Spares/Repair Parts											
APAF: BA07: Line Item #	-	-	1.460	-	1.460	-	-	-	-	-	-
B05200: Denot Activation											

Remarks

D. Acquisition Strategy

The Mode S/5 IFF Program's EMD contract is sole source to Boeing Defense, Space and Security (DSS), Oklahoma City, OK. This modification will be implemented via Contract Field Team (CFT).

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

PE 0101113F: *B-52 SQUADRONS*

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force

R-1 Program Element (Number/Name)

PE 0101113F *I B-52 SQUADRONS*

Project (Number/Name)

Date: March 2014

675049 I MODE S/5 IFF

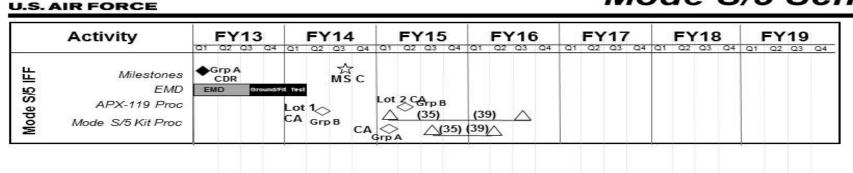


Appropriation/Budget Activity

3600 / 7

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B-52 Squadrons Mode S/5 Schedule



Concept activities
Production / fielding

Design / development
Operations / sustainment

Integration / test

△◇ Key events

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PE 0101113F: *B-52 SQUADRONS* Air Force

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R-1 Line #122

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Exhibit R-2A, RDT&E Project Ju	stification:	PB 2015 A	Air Force							Date: Mare	ch 2014	
Appropriation/Budget Activity 3600 / 7				R-1 Program Element (Number/Name) PE 0101113F / B-52 SQUADRONS Project (Number/Name) 675050 / CONECT							ne)	
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO [#]	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
675050: CONECT	-	-	12.634	14.323	-	14.323	1.977	2.376	4.958	4.365	-	40.633
Quantity of RDT&E Articles	2.000	-	-	-	-	-	-	-	-	-		

^{*} The FY 2015 OCO Request will be submitted at a later date.

Note

PRIOR YEAR COSTS FOR CONECT FY 05 - FY 12 ARE CONTAINED IN BPAC 675039 B-52 MODERNIZATION. THIS DOCUMENT REFLECTS NEW BPAC 675050 WHICH WAS ESTABLISHED FY 13.

A. Mission Description and Budget Item Justification

The B-52 Combat Network Communications Technology (CONECT) acquisition project supports nuclear and conventional operations by upgrading the B-52 fleet with tactical datalink and voice communications capabilities along with improved threat and situational awareness to support participation in network centric operations. The CONECT upgrade includes new Multi-Functional Color Displays (MFCDs) and a digital interphone system, which will survive and function through the nuclear environment to enhance crew interaction and situational awareness. To enable net centric operations, the CONECT upgrade integrates: on-board client/server architecture supporting distributed processing with independent control functions; UHF Beyond Line-Of-Sight (BLOS) Joint Range Extension (JRE) capability via ARC-210 Warrior radio to exchange J-Series messaging within theater; Intelligence Broadcast Receiver (IBR); limited Internet Protocol (IP)-based UHF BLOS link supporting voice, e-mail and file transfers; and Improved Data Modem (IDM)-based digital Variable Message Format (VMF) datalink to significantly enhance close air support (CAS) missions. This integrated suite will provide the B-52 fleet with a machine-to-machine data transfer capability supporting aircraft re-tasking and re-targeting of Conventional Air Launched Cruise Missile (CALCM) and J-series weapons across the range of B-52 military operations and missions. This requirement's Capability Development Document (CDD) was validated by the Air Force Requirement's Oversight Capability Council (AFROCC) on 18 March 2004.

Additional funds have been added to the project for the completion of the CONECT capability development and the CONECT capability inclusion into the required B-52 training systems, and production/installation/initial support for a total of 76 CONECT capable aircraft (2 kits were funded in EMD). The LRIP Lot 1 contract awarded in May 2013. The test aircraft will maintain the installed CONECT configuration and will be used to evaluate efforts to maintain and/or update B-52 CONECT capabilities. As the CONECT upgrade brings additional capability to the B-52, emerging communication requirements (upgrades to IBR, JRE messages, etc.) and aircraft upgrades (1760 Internal Weapons Bay Upgrade, Mode S/Mode 5 Identification, Friend or Foe (IFF), etc.) may require study for potential impacts to CONECT.

TRAINERS AND UPGRADES FOR CONECT

In order to maintain currency with the latest aircraft configuration, the CONECT project will update existing trainers or use computer-based training to add CONECT functionality to meet user-training requirements, and update/maintain the system integration laboratory (SIL) for the Weapon System Trainers (WST).

This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

PE 0101113F: *B-52 SQUADRONS*

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Exhibit R-2A, RDT&E Project Jus	tification: PB	2015 Air Fo	rce						Date: Ma	arch 2014	
Appropriation/Budget Activity 3600 / 7						ment (Numb 52 SQUADR			t (Number/N) / CONECT	ame)	
B. Accomplishments/Planned Pr	ograms (\$ in I	<u>Millions)</u>							FY 2013	FY 2014	FY 2015
Title: CONECT									-	12.634	14.323
Description: Continue Diminishing engineering design of CONECT cain Government Furnished Equipmer recurring updates of the B-52 softwommunication requirements (upgrupgrade, Mode S/Mode 5 IFF, etc. existing trainers or use computer-bunaintain the SIL for the WST.	pability into the ent (GFE) and over are baseline. rades to the IBI (and may require seconds)	e B-52 training	ng systems. rnization req NECT upgrad sages, etc.) ential impac	Begin incorpuirements. I de brings add and aircraft uts to CONEC	orating chain noorporate/ditional capaupgrades (1°CT. CONECTONECTONECTONECTONECTONECTONECTONEC	nges require integrate CC ability to the I 760 Internal Γ will begin u	d due to upd NECT with 3-52, emerg Weapons Ba pdate of the	ing ay			
Continue DMS redesign developm training systems. Incorporate chan integrate CONECT with recurring uthe B-52, emerging communication Weapons Bay Upgrade, Mode S/M of the existing trainers or use compupdate/maintain the SIL for the WS	ges required d updates of the I requirements lode 5 IFF, etc outer-based tra	ue to update 3-52 softwar (upgrades to) may require	es in GFE and rest baseline. And the IBR, JF restudy for propertions.	d crypto mod As the CONE RE message: otential impa	dernization r ECT upgrades, etc) and a acts to CON	equirements e brings addi aircraft upgra ECT. CONE	. Incorporat tional capab des (1760 Ir CT will begin	e/ ility to nternal update			
FY 2015 Plans: Complete DMS redesign developm training systems. Incorporate chan integrate CONECT with recurring the B-52, emerging communication Weapons Bay Upgrade, Mode S/M of the existing trainers or use compupdate/maintain the SIL for the WS	ges required d updates of the I requirements lode 5 IFF, etc outer-based tra	ue to update 3-52 softwar (upgrades to) may require	es in GFE and Te baseline. A To the IBR, JF Te study for p	d crypto mod As the CONE RE message: otential impa	dernization r ECT upgrades, etc) and a acts to CON	equirements e brings addi aircraft upgra ECT. CONE	. Incorporat tional capab des (1760 Ir CT will begin	e/ ility to nternal update			
				Accon	nplishment	s/Planned P	rograms Sເ	ubtotals	-	12.634	14.323
C. Other Program Funding Sumn	• .	,	FY 2015	FY 2015	FY 2015					Cost To	
<u>Line Item</u> • APAF: BA05: Line Item # B05200: <i>B-52</i>	<u>FY 2013</u>	FY 2014 74.221	<u>Base</u> 153.778	<u>oco</u> -	<u>Total</u> 153.778	FY 2016 142.606	FY 2017 123.631	FY 201 81.92		Complete -	Total Cost

PE 0101113F: *B-52 SQUADRONS* Air Force

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force			Date: March 2014
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0101113F I B-52 SQUADRONS	Project (N 675050 / C	umber/Name) CONECT
C Other Program Funding Summary (\$ in Millions)	,	1	

C. Other Program Funding Summary (\$ in Millions)

<u> </u>	, , ,	,									
			FY 2015	FY 2015	FY 2015					Cost To	
<u>Line Item</u>	FY 2013	FY 2014	Base	000	<u>Total</u>	FY 2016	FY 2017	FY 2018	FY 2019	Complete	Total Cost
APAF: BA06: Line Item #	-	2.226	5.966	-	5.966	5.504	4.366	1.688	1.888	_	-
B05200: Initial Spares\Repair Parts											
APAF: BA07: Line Item #	-	7.000	5.249	-	5.249	7.041	8.731	-	_	_	-
B05200: Post Production Support											
APAF:BA07: Line Item #	-	-	0.198	-	0.198	0.198	1.488	13.208	15.901	_	-
B05200: Depot Activation											

Remarks

D. Acquisition Strategy

The B-52 CONECT EMD prime contract is a sole source to Boeing Defense, Space & Security (DSS), Oklahoma City, OK. Boeing designs, develops, tests and procures necessary equipment from their subcontractors; developed engineering drawings, logistic and technical data, and time compliance technical order (TCTO) for installation on the B-52. Pro-Active Systems is the current contractor for the trainer update to integrate CONECT into the existing trainers.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force

Date: March 2014

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Appropriation/Budget Activity 3600 / 7

R-1 Program Element (Number/Name)

Project (Number/Name)

PE 0101113F *I B-52* SQUADRONS

675050 I CONECT



B-52 Squadrons CONECT Schedule

FY18 FY19	FY17	FY16	FY15	FY14	FY13	Activity	
Q2 Q3 Q4 Q1 Q2 Q3 Q	Q1 Q2 Q3 Q4		01 02 03 04 ☆ FRP Decis	Q4 Q1 Q2 Q3 Q4 T&E Report Kitproof	◆ OT&E	Milestones EMD	F
		ot 2 A	Lot 1 △ △LRIP L	(8) <u>A LRIP</u>	CA◆ (8)	LRIP	CONECT
	ot 1 🛆		CA \diamondsuit (17)	CA V (10)		FRP	
	FRP Lo	CA<>(16)					
FRP Lot 3	CA 🔷 (13)						
CA \diamondsuit (6) FRP Lot							
CA \diamondsuit (4 FRP Lot 5							
c	26 4						

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PE 0101113F: *B-52 SQUADRONS*

Air Force

Exhibit R-2A, RDT&E Project Ju	ustification:	PB 2015 A	ir Force							Date: Marc	ch 2014	
Appropriation/Budget Activity 3600 / 7					,				Project (Number/Name) 675051 / ANTI-SKID			
COST (\$ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
675051: ANTI-SKID	-	0.729	-	-	-	-	-	-	-	-	-	0.729
Quantity of RDT&E Articles	2.000	-	-	-	-	_	-	-	-	-		

^{*} The FY 2015 OCO Request will be submitted at a later date.

Note

The RDT&E effort for this project ends with FY13 funding.

A. Mission Description and Budget Item Justification

The B-52 Anti-skid system is used to maintain control of aircraft during landings and taxi operations. The B-52 Anti-skid system prevents aircraft skidding by sensing the exact amount of brake pressure needed for safe braking under all runway conditions without tire damage. Previous B-52 Anti-skid supportability analysis, completed in 2006 by General Atomics indicated a supportability end date of 2011, based on parts obsolescence, a lack of test equipment, and a lack of repair personnel. Parts obsolescence continues to be a major supportability factor. However, since the previous analysis, test equipment and new depot maintenance procedures to refurbish previously failed Anti-skid detectors have been put in place in order to provide spares through 2015 when the replacement will be available. The Anti-skid Replacement project develops and installs a new system. This effort includes an upgrade of the maintenance trainers. This requirement was validated by Air Force Form 1067, signed in July 2009.

BA7- This project is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2013	FY 2014	FY 2015
Title: Anti-skid	0.729	-	-
Description: Replaces legacy B-52 Anti-skid system with modernized system improving safety and cockpit display. Anti-skid detector has been identified a critical obsolescence item, which begins to be unsupportable in FY15. Development activities completed in FY13.			
FY 2013 Accomplishments: Completed flight test activities and flight test reports.			
Accomplishments/Planned Programs Subtotals	0.729	-	_

PE 0101113F: *B-52 SQUADRONS*

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Exhibit R-2A, RDT&E Project Justification: PB 2015 Air Force		Date: March 2014		
ļ 11 · .	R-1 Program Element (Number/Name)	- 3 (umber/Name)	
3600 / 7	PE 0101113F <i>I B-52 SQUADRONS</i>	675051 <i>I A</i>	ANTI-SKID	

C. Other Program Funding Summary (\$ in Millions)

FY 2019	Complete Total Cos	<u>.</u>
0.941		
-		
	0.941	

B05200: Initial Spares/Repair Parts

Remarks

D. Acquisition Strategy

The B-52 Anti-skid program is a combined effort between the Oklahoma City Air Logistics Complex (OC-ALC) and the Ogden Air Logistics Complex (OO-ALC). The modification will be implemented via Contract Field Team (CFT).

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

PE 0101113F: *B-52 SQUADRONS*

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Exhibit R-4, RDT&E Schedule Profile: PB 2015 Air Force Date: March 2014

Appropriation/Budget Activity R-1 Program Element (Number/Name) Project (Number/Name) PE 0101113F *I B-52* SQUADRONS 3600 / 7

675051 *Î ANTI-SKID*

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B-52 Squadrons Anti-Skid Schedule

	Activity	FY13	FY14	FY15	FY16	FY17	FY18	FY19
skid	Milestones	Q2 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4	Q1 Q2 Q3 Q4
Anti-sk	EMD	Gnd/Flt Testin	MS C CA (15)	(23)	(1)	(3)	(3)	(3)
	Kit Procurement		Δ3)	(23)	(1)	(5)	(3)	

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